

We claim:

1. A coating composition comprising:  
filler particles having an average particle size in a range from about 100 microns to about 600 microns in an amount from about 35% to about 90% by weight on a dry solids basis;  
a binder; and,  
a liquid carrier;  
the composition having a solids content in a range from about 50% to about 85%.
2. The coating composition of claim 1, wherein the binder is selected from the group consisting of epoxies, urethanes, melamines, polyesters, vinyl polymers, starches, proteins and combinations thereof.
3. The coating composition of claim 1, wherein the binder is a polymer formed of a monomer selected from the group consisting of vinyl acetate, vinyl propionate, vinyl butyrate, ethylene, vinyl chloride, vinylidene chloride, vinyl fluoride, vinylidene fluoride, ethyl acrylate, methyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, methyl methacrylate, butyl methacrylate, hydroxyethyl methacrylate, styrene, butadiene, urethane, epoxy, melamine, ester and combinations thereof.
4. The coating composition of claim 1, wherein the filler particles are selected from the group consisting of calcium carbonate, dolomite, and combinations thereof.

5. The coating composition of claim 1, wherein the solids content is in a range from about 70% to about 80% by weight.

6. The coating composition of claim 1, further comprising a pigment, wherein the pigment to binder ratio is in a range from about 5:1 to about 30:1 on a dry solids basis.

7. The coating composition of claim 1, wherein the filler particles exhibit an average particle size in a range from about 200 to about 450 microns.

8. The coating composition of claim 1, further comprising secondary particles selected from the group consisting of silica, titanium dioxide, barium sulfate, clay, mica, talc, perlite, gypsum, wollastonite, calcite, aluminum trihydrate, zinc oxide, zinc sulfate and combinations thereof.

9. The coating composition of claim 8, wherein the secondary particles have an average particle size in the range from about 0.1 to about 30 microns.

10. The coating composition of claim 8, wherein the secondary particles comprise from about 5% to about 55% by weight on a dry solids basis of said coating composition.

11. An acoustical panel comprising:
- a substrate having a backing surface and a facing surface that is substantially free of punch holes, wheel abrasions, embossing and erosion, and wherein the thickness of the substrate is about 0.75 inches or less; and,
- a coating composition applied to the facing surface, wherein the coated substrate has an NRC value of about 0.50 or greater and a texture value of about 20 ml/sq ft or greater.
12. The acoustical panel of claim 11, wherein the acoustical panel exhibits an NRC value of about 0.65 or greater.
13. The acoustical panel of claim 11, further comprising a scrim upon which the coating composition is applied and wherein the coated scrim is applied to the facing surface of the substrate.
14. The acoustical panel of claim 11, wherein said coating composition comprises filler particles having an average particle size in a range of about 100 microns to about 600 microns in an amount from about 35% to about 90% by weight on a dry solids basis.
15. The acoustical panel of claim 14, wherein the filler particles exhibit an average particle size in a range from about 200 to about 450 microns.
16. The acoustical panel of claim 14, wherein the filler particles are selected from a group consisting of calcium carbonate, dolomite and combinations thereof.

17. The acoustical panel of claim 14, wherein said coating composition further comprises a binder selected from the group consisting of vinyl acetate, vinyl propionate, vinyl butyrate, ethylene, vinyl chloride, vinylidene chloride, vinyl fluoride, vinylidene fluoride, ethyl acrylate, methyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, methyl methacrylate, butyl methacrylate, hydroxyethyl methacrylate, styrene, butadiene, urethane, epoxy, melamine, ester and combinations thereof.

18. The acoustical panel of claim 17, wherein said coating composition further comprises a pigment, wherein the pigment to binder ratio is in a range from about 5:1 to about 30:1 on a dry solids basis.

19. The acoustical panel of claim 17, wherein said coating composition further comprises secondary particles selected from the group consisting of silica, titanium dioxide, barium sulfate, clay, mica, talc, perlite, gypsum, wollastonite, calcite, aluminum trihydrate, zinc oxide, zinc sulfate and combinations thereof.

20. The acoustical panel of claim 19, wherein the secondary particles have an average particle size in a range of about 0.1 to about 30 microns.

21. The acoustical panel of claim 19, wherein the coating composition comprises said secondary particles in a range from about 5% to about 55% by weight on a dry solids basis.

22. The acoustical panel of claim 11, wherein the substrate is a mineral fiberboard.

23. A coated scrim comprising:  
a scrim; and,  
a coating composition applied to said scrim, wherein the coated scrim has an airflow resistance in the range from about 600 mks rayls to about 900 mks rayls and a texture value in a range from about 20 ml/sq ft to about 65 ml/sq ft.
24. The coated scrim of claim 23, wherein the coated scrim has a hiding power value of about 98% or greater.
25. The coated scrim of claim 23, wherein the coating composition comprises filler particles having an average particle size in a range from about 100 microns to about 600 microns in an amount from about 35% to about 90% by weight on a dry solids basis.
26. The coated scrim of claim 25, wherein the filler particles are selected from the group consisting of calcium carbonate, dolomite and mixtures thereof.
27. The coated scrim of claim 25, wherein the coating composition comprises secondary particles selected from the group consisting of vinyl acetate, vinyl propionate, vinyl butyrate, ethylene, vinyl chloride, vinylidene chloride, vinyl fluoride, vinylidene fluoride, ethyl acrylate, methyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, methyl methacrylate, butyl methacrylate, hydroxyethyl methacrylate, styrene, butadiene, urethane, epoxy, melamine, ester and combinations thereof.

28. The coating scrim of claim 27, wherein the secondary particles have an average particle size in the range from about 0.1 to about 30 microns.

29. The coated scrim of claim 27, wherein the coating composition contains the secondary particles in an amount from about 5% to about 55% by weight on a dry solids basis.

30. The coated scrim of claim 25, wherein the coating composition further comprises a polymeric binder formed of a monomer selected from the group consisting of vinyl acetate, vinyl propionate, vinyl butyrate, ethylene, vinyl chloride, vinylidene chloride, vinyl fluoride, vinylidene fluoride, ethyl acrylate, methyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, methyl methacrylate, butyl methacrylate, hydroxyethyl methacrylate, styrene, butadiene, urethane, epoxy, melamine, ester and combinations thereof.

31. The coated scrim of claim 30, wherein the coating composition further comprises a pigment, the coating composition having a pigment to binder ratio in a range from about 5:1 to about 30:1 on a dry solids basis.

32. The coated scrim of claim 25, wherein the filler particles have an average particle size in a range from about 200 to about 450 microns.

33. The coated scrim of claim 23, wherein the coating composition has a solids content in a range from about 50% to about 85% by weight.

34. A suspended ceiling system comprising:

a grid;

a plurality of acoustical panels suspended by said grid, wherein each of the plurality of acoustical panels has a texture value in a range from about 20 ml/sq ft to about 65 ml/sq ft; and,

a coated scrim suspended in said grid, the coated scrim having a texture value in a range from about 20 ml/sq ft to about 65 ml/sq ft and an air flow resistance value in a range from about 600 mks rayls to about 900 mks rayls.

35. The suspended ceiling system of claim 34, wherein the coated scrim has a hiding power value of about 98% or greater.

36. The suspended ceiling system of claim 34, wherein each of the plurality of acoustical panels has an NRC value of about 0.50 or greater.

37. The suspended ceiling system of claim 34, wherein the coated scrim and each of the plurality of acoustical panels have texture values within approximately 20 ml/sq ft of each other.

38. The suspended ceiling system of claim 37, wherein the coated scrim and each of the plurality of acoustical panels have texture values within approximately 10 ml/sq ft of each other.

39. The suspended ceiling system of claim 34, wherein said coated scrim is coated with a coating composition comprising filler particles exhibiting an average particle size in a range from about 100 microns to about 600 microns in an amount from about 35% to about 90% by weight on a dry solids basis.

40. The suspended ceiling system of claim 39, wherein the filler particles have an average particle size in a range from about 200 to about 450 microns.

41. The suspended ceiling system of claim 39, wherein the filler particles are selected from a group consisting of calcium carbonate, dolomite and combinations thereof.

42. The suspended ceiling system of claim 39, wherein said coating composition further comprises a polymeric binder formed of a monomer selected from the group consisting of vinyl acetate, vinyl propionate, vinyl butyrate, ethylene, vinyl chloride, vinylidene chloride, vinyl fluoride, vinylidene fluoride, ethyl acrylate, methyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, methyl methacrylate, butyl methacrylate, hydroxyethyl methacrylate, styrene, butadiene, urethane, epoxy, melamine, ester and combinations thereof.

43. The suspended ceiling system of claim 39, wherein said coating composition further comprises secondary particles selected from the group consisting of silica, titanium dioxide, barium sulfate, clay, mica, talc, perlite, gypsum, wollastonite, calcite, aluminum trihydrate, zinc oxide, zinc sulfate and combinations thereof.



44. The suspended ceiling system of claim 43, wherein the secondary particles have an average particle size in the range from about 0.1 to about 30 microns.

45. The suspended ceiling system of claim 43, wherein said secondary particles comprise from about 5% to about 55% by weight on a dry solids basis of said coating composition.

46. The suspended ceiling system of claim 42, wherein said coating composition further comprises a pigment, the pigment to binder ratio being in a range from about 5:1 to about 30:1 on a dry solids basis.

47. The suspended ceiling system of claim 34, further comprising a flat panel sound radiator panel disposed above said coated scrim.

48. A method of applying a coating to a substrate, the method comprising the steps of:

- providing a coating composition having filler particles, binder and a liquid carrier;
- spraying the coating composition from a high-volume, low pressure spray apparatus onto a porous substrate; and
- drying the coated substrate;

the resulting coated substrate having an airflow resistance value in a range from about 600 mks rayls to 900 mks rayls and a texture value in a range from about 20 ml/sq ft to about 65 ml/sq ft.

49. The method of claim 48, wherein spraying occurs at an atomization pressure in a range from about 10 psi to about 30 psi.

50. The method of claim 48, wherein said coated substrate exhibits a hiding power of about 98% or greater.

51. The method of claim 48, wherein the filler particles have an average particle size in a range from about 100 microns to about 600 microns in an amount from about 35% to about 90% by weight on a dry solids basis.

52. The method of claim 51, wherein the filler particles are selected from the group consisting of calcium carbonate, dolomite and combinations thereof.